

Building for Linux

[Jump to bottom](#)

Steveice10 edited this page 2 days ago · 67 revisions

An unofficial PKGBUILD of Citra is available for Arch Linux on the [AUR](#).

Dependencies:

You'll need to download and install the following to build Citra:

- [SDL2](#)
 - Deb: `sudo apt install libsdl2-dev`
 - Arch: `pacman -S sdl2`
 - Fedora: `sudo dnf install SDL2-devel`
 - OpenSUSE: `zypper in libSDL2-devel`
- [OpenSSL](#) (optional)
 - Deb: `sudo apt install libssl-dev`
 - Arch: `pacman -S openssl-1.0`
 - Fedora: `sudo dnf install openssl-devel`
 - OpenSUSE: `zypper in openssl-devel`
- [Qt](#) 6.2+
 - Only 6.2+ versions are tested. Lower version might or might not work. See the section **Install new Qt version** below if your distro does not provide a sufficient version of Qt
 - Deb: `sudo apt install qt6-base-dev qt6-base-private-dev qt6-multimedia-dev`
 - You may also need `apt install qt6-l10n-tools qt6-tools-dev qt6-tools-dev-tools` to build with translation support
 - You may also need `apt install libgl-dev` if you run into WrapOpenGL issues while configuring with CMake.
 - Arch: `pacman -S qt6-base qt6-multimedia qt6-multimedia-ffmpeg`
 - You will also need to install a multimedia backend, either `qt6-multimedia-ffmpeg` or `qt6-multimedia-gstreamer`.
 - Fedora: `sudo dnf install qt6-qtbase-devel qt6-qtbase-private-devel qt6-qtmultimedia-devel`
 - OpenSUSE: `zypper in qt6-base qt6-multimedia`
- [PORTAUDIO](#)
 - Deb: `sudo apt install libasound-dev`
 - Fedora: `sudo dnf install portaudio-devel`
 - OpenSUSE Leap 15: `zypper in portaudio-devel`

- OpenSUSE Tumbleweed: zypper in portaudio-devel
- [XORG](#)
 - Deb: sudo apt install xorg-dev libx11-dev libxext-dev
 - Fedora: sudo dnf install xorg-x11-server-devel libX11-devel libXext-devel
 - OpenSUSE Leap 15: zypper in xorg-x11-util-devel libX11-devel libXext-devel
 - OpenSUSE Tumbleweed: zypper in xorg-x11-util-devel libX11-devel libXext-devel
- [JACK Audio Connection Kit](#)
 - Deb: sudo apt install jackd
 - Fedora: sudo dnf install jack-audio-connection-kit-devel
 - OpenSUSE Leap 15: zypper in libjack-devel
 - OpenSUSE Tumbleweed: zypper in libjack-devel
- [PipeWire](#)
 - Deb: sudo apt install libpipewire-0.3-dev
 - Fedora: sudo dnf install pipewire-devel
 - OpenSUSE Leap 15: zypper in pipewire-devel
 - OpenSUSE Tumbleweed: zypper in pipewire-devel
- **Optional dependencies**
- [sndio](#)
 - Deb: sudo apt install libsndio-dev
 - Fedora: sudo dnf -y copr enable andykimpe/shadow && sudo dnf -y install sndio
 - OpenSUSE Leap 15: zypper in sndio-devel
 - OpenSUSE Tumbleweed: zypper in sndio-devel
- **Optional dependencies**
- [Gnome esound](#)
 - Deb: echo "esound require build use source code <https://download.gnome.org/sources/esound/>"
 - Fedora: sudo dnf install esound-devel
 - OpenSUSE Leap 15: zypper in libesd0-devel
 - OpenSUSE Tumbleweed: zypper in libesd0-devel
- **Compiler: GCC or Clang. You only need one of these two:**
 - GCC 11.0+.
 - Deb: apt install build-essential
 - Arch: pacman -S base-devel
 - Fedora: dnf install gcc-c++
 - OpenSUSE: zypper in gcc-c++
 - [Clang](#) 15.0+
 - Deb: apt install clang clang-format libc++-dev
 - Note for Ubuntu users: Clang 15 is available only from 22.10 onward. For earlier distro versions, see: <https://apt.llvm.org/>

- Arch: `pacman -S clang, libc++` is in the AUR. Use `pacaur` or `yaourt` to install it.
- Fedora: `dnf install clang libcxx-devel`
- OpenSUSE: `zypper in clang`
- [CMake](#) 3.20+
 - Deb: `apt install cmake`
 - Arch: `pacman -S cmake`
 - Fedora: `dnf install cmake`
 - OpenSUSE: `zypper in cmake extra-cmake-modules`
- Note on Boost library: you don't need to install Boost library on your system, because citra provides a bundled trimmed Boost library. However, if you already have Boost library installed on your system, please make sure its version is at least 1.66 (which contains a bug fix for GCC 7), otherwise compilation would fail.

Cloning Citra in Git:

```
git clone --recursive https://github.com/citra-emu/citra
cd citra
```



The `--recursive` option automatically clones the required Git submodules too.

Building Citra in Debug Mode (Slow):

Using gcc:

```
mkdir build
cd build
cmake ../
cmake --build . -- -j"$(nproc)"
sudo make install (optional)
```



Optionally, you can use `"cmake -i .."` to adjust various options (e.g. disable the Qt GUI).

Using clang:

Note: It is important you use `libc++`, otherwise your build will likely fail:

```
mkdir build
cd build
cmake .. -DCMAKE_CXX_COMPILER=clang++-5.0 \
        -DCMAKE_C_COMPILER=clang-5.0 \
        -DCMAKE_CXX_FLAGS="-O2 -g -stdlib=libc++"
cmake --build . -- -j"$(nproc)"
sudo make install (optional)
```



If you get a weird compile error related to `std::span` conversions, make sure you are using clang and `libc++` 15 or up. This is an issue with `libc++` 14.

Building Citra in Release Mode (Optimized):

```
mkdir build
cd build
cmake .. -DCMAKE_BUILD_TYPE=Release
```



```
cmake --build . -- -j"$(nproc)"
sudo make install (optional)
```

Building with debug symbols:

```
mkdir build
cd build
cmake .. -DCMAKE_BUILD_TYPE=RelWithDebInfo
cmake --build . -- -j"$(nproc)"
sudo make install (optional)
```



Running without installing:

After building, the binaries `citra`, `citra-qt` and `citra-room` (depending on your build options) will end up in `build/bin/`.

```
# SDL
cd build/bin/
./citra

# Qt
cd build/bin/
./citra-qt

# Dedicated room
cd build/bin/
./citra-room
```



Debugging:

```
cd data
gdb ../build/bin/citra-qt
(gdb) run
<crash>
(gdb) bt
```



Install new Qt version

If your distribution's version of Qt is too old, there are a few places you may be able to find newer versions.

- This Ubuntu PPA contains backports of Qt 6 to various older versions:
<https://launchpad.net/~savoury1/+archive/ubuntu/qt-6-2>
- This unofficial CLI installer allows downloading and installing the latest first-party builds of Qt to your system (whether it works against your distribution may vary): <https://github.com/miurahr/aqtinstall>

Home

- **Users:**

- [FAQ](#)
- [Legacy Builds](#)
- [User Directory](#)
- [Citra Web Service](#)
- [Compatibility List](#)
- [Android user data](#)
- [Installing FFmpeg](#)
- Dumping guides:
 - [AES keys](#)
 - [Game cartridges](#)
 - [Installed titles](#)
 - [Updates and DLCs](#)
 - [Save data](#)
 - [Extra data](#)
 - [Config savegame](#)
 - [System archives](#)

- **General:**

- [Contributing](#)
- [Donating](#)

- **Developers:**

- [Developer information](#)
- [Common issues](#)
- Building Citra:
 - [Windows](#)
 - [macOS](#)
 - [Linux](#)
 - [Android](#)
 - [OpenBSD](#)
- [3DS CPU](#)
- [3DS documentation](#)
- [3DS tests](#)
- [LLE library applet](#)
- [Log filters](#)
- [APK signing in Bitrise](#)
- [Issue labels](#)
- [Stack trace guide](#)
- [Typical Git workflow](#)

Clone this wiki locally

<https://github.com/citra-emu/citra.wiki.git>

